

## Claims

- [c1] What is claimed is:
1. A surface-coated machining tool, comprising:  
a cemented-carbide base material containing tungsten carbide and cobalt, with the cobalt inclusion amount being 4 weight % or more and 12 weight % or less;  
and  
coated over said cemented-carbide base material, a compound thin film made up of a combination of one or more elements selected from the group titanium, chromium, vanadium, silicon and aluminum, and one or more elements selected from carbon and nitrogen; wherein  
said compound thin film is coated in at least a single layer.
  - [c2] 2. The surface-coated machining tool set forth in claim 1, wherein said compound thin film is 0.05  $\mu\text{m}$  or more and 3  $\mu\text{m}$  or less in thickness.
  - [c3] 3. The surface-coated machining tool set forth in claim 1, wherein a compressive residual stress of 0.1 GPa or more and 8 GPa or less is imparted to said compound thin film.
  - [c4] 4. The surface-coated machining tool set forth in claim 1, wherein said compound thin film is in surface roughness adjusted to be 0.01  $\mu\text{m}$  or more and 0.5  $\mu\text{m}$  or less by indication Ra.
  - [c5] 5. A surface-coated machining tool, comprising:  
a cemented-carbide base material containing tungsten carbide and cobalt, with the cobalt inclusion amount being 4 weight % or more and 12 weight % or less;  
and  
a hard carbon thin film made up essentially of carbon atoms only, coated over said cemented-carbide base material by a physical vapor deposition method in which graphite is made a raw material; wherein  
said hard carbon thin film is coated in at least a single layer.
  - [c6] 6. The surface-coated machining tool set forth in claim 5, wherein said hard carbon thin film is 0.05  $\mu\text{m}$  or more, and 3  $\mu\text{m}$  or less in thickness.
  - [c7] 7. The surface-coated machining tool set forth in claim 5, wherein a



and 1.5  $\mu\text{m}$  or less in pre-sintering crystal-grain size.